REMARKS

Responsive to the Office Action dated June 26, 2003, Applicant hereby makes the following response. The present application was filed on July 2, 2003 and included Claims 1-22. Applicant appreciates the Examiner's entry of Applicant's priority claim to Japanese Application No. 2000-201286, filed July 3, 2000 under 35 U.S.C. § 119. Claims 1-2, 5-9, 12-16, and 19-22 have been amended and new claims 23-44 have been added. Accordingly, Claims 1-44, with Claims 1, 8, 15 and 23 being independent, are pending for prosecution in the present application.

I. Summary of the Claims

Independent Claim 1, as amended, recites a battery comprising a positive electrode and a negative electrode having a collector layer selected from the group consisting of a foil including a metal wherein the metal is not copper and does not form an alloy with lithium, and a copper foil covering the metal. Claim 1 also recites an electrolyte including a polymer compound selected from the group consisting of radically-polymerized monofunctional monomers, multifunctional monomers, and mixtures thereof.

Independent Claim 8, as amended, recites a battery comprising a positive electrode, a separator, and a negative electrode having a collector layer selected from the group consisting of a foil including a metal wherein the metal is not copper and does not form an alloy with lithium, and a copper foil covering the metal. Claim 8 also recites an electrolyte including a polymer compound selected from the group consisting of radically-polymerized monofunctional monomers, multifunctional monomers, and mixtures thereof.

Independent Claim 15, as amended, recites a battery comprising a battery device including a positive electrode, a negative electrode, an electrolyte, and a package member enclosing the battery device. The negative electrode has a collector layer selected from the group consisting of a foil including a metal wherein the metal is not copper and does not form an

alloy with lithium, and a copper foil covering the metal. Claim 15 also recites an electrolyte including a polymer compound selected from the group consisting of radically-polymerized monofunctional monomers, multifunctional monomers, and mixtures thereof.

Dependent Claim 22 depends from Claim 15 and adds the limitation that the package member is made of a laminate film comprising a laminate film wherein a polymer compound film, a metal film, and a polymer compound film are laminated in that order.

New Independent Claim 23 recites A battery comprising a positive electrode, a negative electrode, and an electrolyte wherein said electrolyte includes a polymer compound selected from the group consisting of radically-polymerized monofunctional monomers, multifunctional monomers, and mixtures thereof.

II. The Double Patenting Rejection

Claims 1-3, 8-10 & 15-17 have been provisionally rejected under the judicially created doctrine of double patenting over claims 1, 26 and 27 of copending Application No. 09/862,621, filed May 22, 2001, in view of U.S. Patent No. 5,518,839 to Olsen. In response thereto, Applicant submits herewith and respectfully requests entry of PTO form SB/25 entitled "Terminal Disclaimer to Obviate a Provisional Double Patenting Rejection Over a Pending Second Application." Accordingly, Applicant respectfully submits that the double patenting rejection has been obviated and, therefore, respectfully requests withdrawal of Application No. 09/862,621 as prior art.

III. The 35 U.S.C. § 103(a) Rejections

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success.

Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

A. Rejection of Claims 1-21 over Gan in view of Peled

Claims 1-21 have been rejected under 35 U.S.C. § 103(a) as obvious over U.S. Patent No. 6,350,546 to Gan et al. in view of U.S. Patent No. 5,472,808 to Peled et al.. For the following reasons, Applicant respectfully submits that the present invention is not obvious under 35 U.S.C. § 103(a) and requests reconsideration and withdrawal of this § 103(a) rejection.

Gan does not teach or suggest the claimed invention. In particular, Gan does not teach or suggest a battery having an electrolyte containing radically-polymerized mono- or multi-functional monomers therein. The Office Action at page 5, lines 4-5, confirms this fact by stating that "[t]he reference is silent to an electrolyte containing a polymer compound synthesized by radical." In fact, Gan teaches away from the present invention. Gan teaches an electrolyte solvent system containing an inorganic salt dissolved in a nonaqueous solvent in combination with an organic sulfate additive. The preferred organic sulfate additive has the general formula $R^1OS(=O)_2(OR^2)$ and is selected from the group consisting of a silyl sulfate, a tin sulfate, and an organic sulfate having at least one unsaturated hydrocarbon containing a $C(sp^2$ or $sp^3)$-$C(sp^3)$ bond unit having the $C(sp^3)$ carbon directly connected to the $-OSO_3-$ functional group. Applicant does not need or use an organic sulfate additive as an ingredient in the electrolyte of the battery of the present invention.

Moreover, Peled does not teach or suggest the claimed invention. Peled teaches an electrolyte solution containing (1) non-conductive oxide particles; (2) an alkali metal salt; (3) elastomers or a hydrocarbon polymer; and (4) an aprotic organic solvent or a low molecular

weight polymer. The hydrocarbon polymer set forth in (3) is disclosed by Peled as polyethylene oxide which is used instead of an electronically-insulating elastomer to form a complex with the alkali metal salt of (2) above. The addition of the elastomer or hydrocarbon polymer is disclosed as needed to form the preferred "elastic" composite solid electrolyte or CSE. *See* Column 2, line 30. Moreover, Peled's CSE is disclosed as preferably containing an electrolyte having up to 20% by weight diglyme, triglyme or tetraglyme or of a crown ether or polyalkylene glycol dialkyl ether or ester of MW 500-50,000 or an aprotic organic solvent. *See* Column 2, lines 48-52. The disclosed polymer is a plasticizer, *see* Claim 1, and does not function to increase electrolyte ion transfer. Rather, as a plasticizer, it inherently functions to increase to flexibility and toughness of the CSE by internal solvation of the polymer molecule. Accordingly, Peled does not teach or suggest Applicant's electrolyte containing radically-polymerized mono- or multi-functional monomers therein.

Prima facie obviousness requires that there must be a reasonable expectation of success when prior art is modified or combined. In the present application, there is no reasonable expectation of success in achieving the present invention as claimed when the cited references are combined. As discussed above, Gan does not contain all the elements of independent Claim 1 nor does Peled. Because neither Gan nor Peled teach an electrolyte containing radically-polymerized mono- or multi-functional monomers, combining the two references does not teach or suggest Applicant's claimed invention. Unless all the elements are taught by the references, there can be no success in modifying them. Accordingly, independent Claims 1, 8, 15 and 23 and the claims depending therefrom are nonobvious under 35 U.S.C. § 103(a).

B. Rejection of Claim 22 over Gan in view of Takami

Claim 22 has been rejected under 35 U.S.C. § 103(a) as obvious over Gan in view of U.S. Patent No. 6,503,657 to Takami et al.. For the following reasons, Applicant respectfully submits

that the present invention is not obvious under 35 U.S.C. § 103(a) and requests reconsideration and withdrawal of this § 103(a) rejection.

As discussed above, Gan does not teach or suggest a battery having an electrolyte containing radically-polymerized mono- or multi-functional monomers. Moreover, the Office Action at page 6, lines 2-3, states that Gan "is silent to the casing comprising a polymer compound film, a metal film, and a polymer compound film are [sic] laminated in that order." Thus, there is no teaching or suggestion of the present invention as claimed in independent Claims 1, 8, 15 and 23 as well as dependent Claim 22.

Turning to the Takami reference, Takami also does not teach or suggest a battery having an electrolyte containing radically-polymerized mono- or multi-functional monomers. Because Claim 22 depends from Claim 15 which includes this limitation, Takami cannot be said to teach the present invention as claimed in Claim 22. Because neither Gan nor Takami teach all of the elements of Claim 15, there is no reasonable expectation of success in combining them.

Thus, at the time the present invention was made, none of the references cited by the Examiner teach or describe *all* of the limitations claimed by Applicant in independent claims 1, 8, 15 and 23 and the claims depending therefrom. It would therefore not have been obvious to one of ordinary skill in the art to provide a battery as claimed by Applicant. Accordingly, independent Claims 1, 8, 15 and 23 and the claims depending therefrom are nonobvious under § 103 (a).

IV. Conclusion

Applicant respectfully requests withdrawal of the rejections and believes that the claims as presented herein represent allowable subject matter. However, if the Examiner desires, the applicant is ready for a telephone interview to expedite prosecution. As always, the Examiner is free to call the undersigned at 816.460.2516. Should any fees be necessitated by this response,

the Commissioner is hereby authorized to deduct any such fees from Deposit Account No. 19-3140.

Respectfully submitted,

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